The Carpenter patent teaches a motor with a cooling passage that extends through the housing, the housing including integral cooling fins. The length of the cooling passage of Carpenter is limited by the size of the housing. Similarly, the Barcus patent simply teaches a way to add cooling fins to a motor housing that does not include cooling fins. The fins are clamped to the housing so that they function in exactly the same manner as the fins of Carpenter.

Neither Carpenter nor Barcus discloses or suggests an *independent heat dissipation device* that separated from the motor housing, as claimed, and therefore it is respectfully submitted that the claimed invention would not have resulted even if the cooling fins of Carpenter were replaced by the clamped-on cooling fins of Barcus. The cooling fins of Barcus, like those of Carpenter, are specifically designed to dissipate heat from the *housing* of a motor, without affecting the finish on the outer surface of the housing. The fins of Barcus are not designed to dissipate heat from an external cooling passage, and would require substantial modification in order to serve as an independent heat dissipation device spaced from the motor casing in the manner claimed.

> The Examiner is again reminded that, as stated in MPEP 2141.02, p. 2100-107
>
> *A prior art reference must be considered in its entirety, i.e., as a <u>whole</u>, including portions that would lead away from the claimed invention* (emphasis in the original).

In order to consider the references "as a whole," the Examiner must view the references in the same that the ordinary artisan would have viewed them, *i.e.*, without a template telling the artisan to ignore certain teachings while taking other teachings out of context solely for the purpose of rejecting Applicant's claims.

The Barcus patent, considered "as a whole," teaches a cooling fin structure that is explicitly intended to be retrofitted onto sealed electric motors that do not already include integral fins. This is accomplished by clamping the fins to the motor in a way that does not damage the motor's finish. The purpose of the fins to dissipate heat from the outer housing of the motor, *i.e.*, electric motors "*subject to being operated in high moisture environments*

especially in such applications as room air conditioners and outdoor condensing units," *i.e.*, electric motors "*having drip-proof or totally enclosed housings to protect internal parts of the electric motor from moisture or water*" (col. 1, lines 20-30). There is no suggestion in Barcus that this structure is applicable to external cooling passages, and Carpenter certainly does not provide such a suggestion since the cooling passage in Carpenter is *internal* to the housing, and heat dissipation is through the housing. While the integral cooling fins of Carpenter could be replaced by a clamp-on structure of the type taught by Barcus, the result would not correspond to the claimed invention since the ordinary artisan would have followed the teachings of Barcus and clamped the fins around the motor housing rather than providing an independent heat dissipation structure.

The only advantages of the proposed combination of cooling passages and a separate heat dissipation structure are those described in the present application in connection with Figs. 9, 10, 12, *etc.*, namely:

a. the ability to extend the cooling passage for greater heat dissipation, and

b. the ability to add other types of cooling structures such as forced air or liquid coolers to facilitate transfer of heat away from the closed circuit passage and/or direct that the heat at devices that might benefit from heat radiated by the heat dissipation structure.

Neither advantage is apparent from Carpenter or Barcus, which both concern heat dissipation from the casing itself, and not via a passage external to and *separate from* the casing. Therefore, the proposed combination could only have been made in light of the hindsight provided by Applicant's disclosure.

Because the Barcus patent could not have suggested modification of the integral structures of Carpenter to space the cast-in heat dissipation structure from the casing, as claimed, withdrawal of the rejection of claims 18, 19, 25, 29-34, and 40 under 35 USC §103(a) is respectfully requested.

2. Rejection of Claims 26 and 27 Under 35 USC §103(a) in view of U.S. Patent Nos. 4,742,257 (Carpenter), 4,244,098 (Barcus), and 4,839,547 (Lordo), or in view of the Carpenter and Barcus patents and Japanese Patent Publication JP 57-68640 (Koyama)

This rejection is respectfully traversed on the grounds that the Lordo patent and the Koyama publication, like the Carpenter and Barcus patents, fail to disclose or suggest a separate heat dissipation device, as recited in claim 18, from which claims 26 and 27 depend. Instead, both references disclose structures for dissipating heat through a motor casing in essentially the same manner as the structures disclosed in the Carpenter and Barcus patents.

3. Rejection of Claims 28 Under 35 USC §103(a) in view of U.S. Patent Nos. 4,742,257 (Carpenter), 4,244,098 (Barcus), and 6,114,784 (Nakano)

This rejection is respectfully traversed on the grounds that the Nakano patent, like the Carpenter and Barcus patents, fails to disclose or suggest an independent, separate heat dissipation device, as recited in claim 18, from which claim 28 depends. Instead, the Nakano patent discloses structures coolant circulation passages in the motor casing itself, and heat dissipation through the casing in essentially the same manner as disclosed in the Carpenter and Barcus patents.

4. Rejection of Claim 36 Under 35 USC §103(a) in view of U.S. Patent Nos. 4,742,257 (Carpenter), 4,244,098 (Barcus), and 4,814,653 (Hasegawa)

This rejection is respectfully traversed on the grounds that the Hasegawa patent, like the Carpenter and Barcus patents, fails to disclose or suggest a *separate* heat dissipation device, as recited in claim 18, from which claim 36 depends. Instead, the Hasegawa patent discloses a variation of the cooling system of Carpenter in which the heat dissipation fins are replaced by a radiator attached to motor housing and in direct communication with the interior thereof.

5. Rejection of Claims 35 and 39 Under 35 USC §103(a) in view of U.S. Patent Nos. 4,742,257 (Carpenter) and 5,770,899 (Hayashi)

This rejection is respectfully traversed on the grounds that while Hayashi discloses input and output pipes, there is no motivation to include such input and output pipes in the integral closed circuit cooling structure disclosed by Carpenter.

An noted above, in the Carpenter motor, *air* is circulated from a fan through a passage on the outside of the motor, past integral heat-dissipating fins, and back into the motor casing. To accomplish this, the passage on the outside of the motor must be in communication with an area of the motor in which the fan is located. In contrast, the coolant of Hayashi is confined to a passage that encloses the stator coil only. There is no room for a fan, and nothing that could turn the fan. The moving portion of the motor of Hayashi is ***outside*** the stator unit and is not exposed to coolant. **While piped coolant for a stator coil may therefore be known from the teachings of the Hayashi patent, there is nothing in Hayashi to suggest that such piped coolant is applicable to the motor of Carpenter, which relies on the fan to force air through the passage.**

It is therefore respectfully submitted that the proposed combination of references could not have been suggested by the Carpenter and Hayashi patents, and withdrawal of the rejection of claims 35 and 39 under 35 USC §103(a) is requested.

Having thus overcome each of the rejections made in the Official Action, withdrawal of the rejections and expedited passage of the application to issue is requested.

Respectfully submitted,

BACON & THOMAS, PLLC

By: BENJAMIN E. URCIA
Registration No. 33,805

Date: February 24, 2003

BACON & THOMAS, PLLC
625 Slaters Lane, 4th Floor
Alexandria, Virginia 22314

Telephone: (703) 683-0500

APPENDIX A
(Clean Copy Of Amended Claims)

18. (Amended) An air cooler for an enclosed electrical machine,

wherein the enclosed electrical machine includes a casing having an inlet and an outlet, and

wherein said air cooler comprises:

a heat dissipation device, at least a portion of which is independent of and separated from said casing;

a closed coolant circulation structure that connects said outlet with said heat dissipation device, and that connects said heat dissipation device with said inlet; and

a fan situated within the casing and arranged to pump a coolant out of the casing through said outlet and through said closed coolant circulation structure to said heat dissipation device, said fan being further arranged to pump said coolant back into said casing from said heat dissipation device through said closed coolant circulation structure and through said inlet.

APPENDIX B
(Marked-Up Copy Of Amended Claims)

18. (Amended) An air cooler for an enclosed electrical machine,

wherein the enclosed electrical machine includes a casing having an inlet and an outlet, and

wherein said air cooler comprises:

a heat dissipation device, at least a portion of which is independent of and separated from said casing;

a closed coolant circulation structure that connects said outlet with said heat dissipation device, and that connects said heat dissipation device with said inlet; and

a fan situated within the casing and arranged to pump a coolant out of the casing through said outlet and through said closed coolant circulation structure to said heat dissipation device, said fan being further arranged to pump said coolant back into said casing from said heat dissipation device through said closed coolant circulation structure and through said inlet[, and

wherein at least said heat dissipation device is an independent structure relative to said casing].